WHAT IS CLAIMED IS:

1. A method for designing interconnects of an LSI, comprising the steps of:

preparing a netlist including a plurality of nets each specifying connection between two of terminals of circuit elements;

performing a simulation for estimating a positive-component average current and a negative-component average current of each of said terminals;

defining a graph including therein a set of nodes and a set of branches each connecting two of said nodes, said set of nodes including at least some of said terminals and branch points of at least some of said branches;

nominating two of said nodes connected by a target branch selected from said at least some of said branches as a positive node and a negative node by using a fixed rule, and separating said at least some of said terminals by said target branch into a positive-node terminal set and a negative-node terminal set corresponding to said positive node and said negative node;

calculating a first sum of said negative-component average currents of said terminals belonging to said positive-node terminal set and a second sum of said positive-component average current of said terminals belonging to said negative-node terminal set, to select a lower value of said first sum and said second sum as a positive-component average current of said target branch;

calculating a third sum of said positive-component average currents of said terminals belonging to said positive-node terminal set and a fourth sum of said negative-component average currents of said terminals belonging to said negative-node terminal set, to select a lower value of said third sum and said fourth sum as a negative-component average current of said target branch; and

designing a size of an interconnect corresponding to said target branch based on said positive-component average current and said negative-component average current of said target branch.

2. The method according to claim 1, wherein said size designing step includes selecting a larger value of said positive-component average current and said negative-component average current of said target branch as a branch current of said target branch.

3. The method according to claim 1, wherein said simulation performing step includes obtaining a waveform of a current of said each of said terminals.

4. The method according to claim **1**, wherein said positive-component average current avg_p and said negative-component average current avg_n of said each of said terminals are respectively represented by:

$$\text{avg\_p}=\frac{1}{2T}\int_0^T\{|I(t)|+I(t)\}dt\text{, and}$$

$$\text{avg\_n}=\frac{1}{2T}\int_0^T\{|I(t)|-I(t)\}dt,$$

where I(t) and T are terminal current of said each of said terminals and a period of said terminal current, respectively.

5. The method according to claim 4, wherein said positive-component average current Iavg_p and said negative-component average current Iavg_n of said target branch are respectively represented by:

$$\text{Iavg\_p} = \min\left(\sum_{m=1}^{M} a_m \cdot avg\_n_m, \sum_{m=1}^{M}(1-a_m)\cdot avg\_p_m,\right), \text{ and}$$

$$\text{Iavg\_n}= \min\left(\sum_{m=1}^{M} a_m \cdot avg\_p_m, \sum_{m=1}^{M}(1-a_m)\cdot avg\_n_m,\right),$$

where m is said sequential number, M is the highest number of said sequential numbers, and $a_m=1$ or $a_m=0$ depending on a m-th terminal belonging to said positive-node terminal set or said negative-node terminal set.

6. A method for designing interconnects of an LSI, comprising the steps of:

preparing a netlist including a plurality of nets each specifying

performing a simulation for estimating a positive-component average current and a negative-component average current of each of said terminals;

separating a terminal set including a part of said terminals into a terminal sub-set and a complement of said terminal sub-set;

calculating a first sum of said negative-component average currents of said terminals belonging to said terminal sub-set and a second sum of said positive-component average current of said terminals belonging to said complement of said sub-set, to select a lower value of said first sum and said second sum as an average branch current of a target branch;

iterating said separating and calculating for another terminal set to calculate a plurality of average branch currents; and

designing a size of interconnect based on said average branch currents.

7. The method according to claim 6, wherein said simulation performing step includes obtaining a waveform of a current of said each of said terminals.

8. The method according to claim 6, wherein said positive-component average current avg_p and said negative-component average current avg_n of said each of said terminals are respectively represented by:

$$\text{avg\_p}=\frac{1}{2T}\int_0^T\{|I(t)|+I(t)\}dt, \text{ and}$$

$$\text{avg\_n}=\frac{1}{2T}\int_0^T\{|I(t)|-I(t)\}dt,$$

where I(t) and T are terminal current of said each of said terminals and a period of said terminal current, respectively.

9. A program stored on a medium for running on a computer system,

said program defining the steps of:

preparing a netlist including a plurality of nets each specifying connection between two of terminals of circuit elements;

performing a simulation for estimating a positive-component average current and a negative-component average current of each of said terminals;

defining a graph including therein a set of nodes and a set of branches each connecting two of said nodes, said set of nodes including at least some of said terminals and branch points of at least some of said branches;

nominating two of said nodes connected by a target branch selected from said at least some of said branches as a positive node and a negative node based on a fixed rule, and separating said at least some of said terminals by said target branch into a positive-node terminal set and a negative-node terminal set corresponding to said positive node and said negative node;

calculating a first sum of said negative-component average currents of said terminals belonging to said positive-node terminal set and a second sum of said positive-component average currents of said terminals belonging to said negative-node terminal set, to select a lower value of said first sum and said second sum as a positive-component average current of said target branch;

calculating a third sum of said positive-component average currents of said terminals belonging to said positive-node terminal set and a fourth sum of said negative-component average currents of said terminals

belonging to said negative-node terminal set, to select a lower value of said third sum and said fourth sum as a negative-component average current of said target branch; and

designing a size of an interconnect corresponding to said target branch based on said positive-component average current and said negative-component average current of said target branch.

10. A program stored on a medium for running on a computer system, said program defining the steps of:

preparing a netlist including a plurality of nets each specifying connection between two of terminals of circuit elements;

performing a simulation for estimating a positive-component average current and a negative-component average current of each of said terminals;

separating a terminal set including a part of said terminals into a terminal sub-set and a complement of said terminal sub-set;

calculating a first sum of said negative-component average currents of said terminals belonging to said terminal sub-set and a second sum of said positive-component average current of said terminals belonging to said complement of said sub-set, to select a lower value of said first sum and said second sum as an average branch current;

iterating said separating and calculating for another terminal set to calculate a plurality of average branch currents; and

designing a size of interconnect based on said average branch currents.